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SOME SOUND BUSINESS ADVICE

MULTI-MILLIONAIRE FISKE GIVES HIS RULES FOR GETTING RICH AND OFFERS ADVICE TO A PROSPECTIVE AUTOMOBILE MANUFACTURER.

"Say!" said a traveling man in the office of The Motor Age, after he had entered and formal greetings had been exchanged, "I had a remarkable experience last night."

"Yes? And what was it?" inquired The Motor Age scribe.

"You remember having several accounts of the experiences of Multi-Millionaire Fiske with his automobiles? Yes? Well, I had an experience with him last evening of an entirely different character from any that The Motor Age has related.

"It impressed me the more because I have allowed myself to believe that the

element of luck is by far the largest factor in the success of men who accumulate enormous fortunes. I have not wholly changed my mind, after hearing from the lips of one of the most successful of men, advice as how to succeed in the automobile business, but I heard things that convinced me that I had attached too much importance to this element of luck.

Meets the Millionaire

"It happened in this way: I had just registered at the Auditorium and was waiting to be assigned a room, when Mr. Fiske came up and registered. If I had not recognized the well known name, I

would have known that he was a person of importance by the deferential manner in which he was greeted by the hotel clerks, three of whom grouped themselves in picturesque attitudes behind the counter, in their solicitude to see that he was properly cared for.

An Interesting Man

"Of course I had to stand aside and wait till he was attended to. I was not averse to this, for it gave me a good chance to examine a person in whom I was interested, not only from the fact that he is a man of international reputation, but because I knew him to be deeply interested in automobiles. I hoped that I might have the opportunity of having a few minutes' conversation with him, but certainly did not anticipate hearing him discourse at the length at which I did—although, to confess the truth in the beginning, his words were not intended for my ears."

The traveling man settled himself comfortably in his chair and lit the cigar which the scribe had proffered him, in anticipation of a good "story," and then proceeded to relate the following tale:

THE TRAVELING MAN'S TALE

That same evening I wandered into one of the hotel parlors and seated myself on one of those dos-a-dos sofas to jot down my expenses in a memorandum book. I had put down all the items of which I could think, and was trying to remember what had become of the money for which I had not accounted, when I heard some one coming into the room, and, looking up, I recognized Mr. Fiske. He was accompanied by a younger man.

It is said that Mr. Fiske is fifty-five years old, but he looks ten years younger. He is stockily built, but without a trace of fat, and is the picture of health. The younger man was evidently about thirty years old, and, as it developed in the conversation that took place between the two, was Mr. Fiske's nephew.

Overhears a Conversation

Neither of the men saw me as they came into the room and after they had advanced a few paces, the high back of the sofa cut me off entirely from their view. It was in this manner that they

happened to seat themselves directly behind me without being aware of my presence, and where I could not fail to hear all that they said. Hearing their conversation in the manner in which I did, I would not repeat it if it could do any possible harm to either one of them.

"Well, Fred, what is it?" said Mr. Fiske, after the two were seated.

"I want some advice from you," said the younger man.

"In what direction?"

"I want you to tell me how to make money."

Lending not a Kindness

"How to make money, and a modest bank account with which to start!" said Mr. Fiske. Ignoring an interruption of dissent, he continued, "I might as well tell you in the first place that I do not propose to give or lend you any money. I did that once, not because I thought it would be a kindness to you, but because I did not want you or your mother to think that I would not help a relative. But you got the money and lost it. Now I have made up my mind that you will get no more, so long as you have your health and reason.

"Do not think that I am blaming you for having lost what I did give you. I know that you were unlucky to an unusual extent. It is not that I blame you in the least."

"Unlucky! You surely do not believe in luck, Uncle?"

The Millionaire Believes in Luck

"Indeed I do. There is no business man of diversified interests who has not seen some venture turn out successful, while another, to which he devoted more care and in which he exercised greater prudence, has gone wrong. Of course there is luck—but because I say that I believe in luck, you must not think that I am superstitious. In your case there may be, and doubtless are men who would have succeeded where you failed, but I am sure, from what I know of you, that there are a great many more who would have failed.

The Value of Money

"But, Fred, that has nothing to do with my refusing to give you money again. It is not because I am miserly, for I give

away in charity every year more than you would dare ask for. The money that a man, especially a young man, gets purely through his own efforts is worth a vast deal more to him than what is gained through the help of others."

The younger man laughed uneasily and said: "But suppose I could show you how you could put some money into a business venture and quadruple it within two years? Would that appeal to you?"

Not Looking for Opportunities

"Not a bit. I have chances like that every day—and some of them are represented as offering opportunities to increase the investment more than tenfold in less than a month. But, Fred, I am not looking for opportunities to make money. I have more than I know what to do with. I could convert my property into cash and spend all that I now spend from the principal, and then, even if I lived to be as old as Methuselah, I would not have made a very great hole in the amount. What need have I to make money? If you know of any reason, please tell me."

The Prestige of Money

"Of course, I don't think that you need to make money to keep out of the poor house," said Fred. "But don't you care to make money for the sake of the money itself—for the power and prestige it gives you? Wouldn't you like to be the richest man in the world?"

"Well—it might be some satisfaction to be the richest man in the world, but I could never accomplish that without risking all that I have and doing it repeatedly. Even if my ambition led me to be the richest man in the world, I would not attempt it at my age. The chances are too great.

Money Versus Content

"No, Fred," he continued, "I do not care for money for itself—beyond a comparatively small amount. My happiest days have not been those in which I had the most money. Far from it. What I do care for is the achieving of success—the same feeling that makes an athlete wish to excel. In my business the making of money is the mark of success. Even at that I might be more successful than I am, if love of my family, charity

and several other things did not appeal more strongly than success, with its attendant accumulation of money. Were I a writer or an artist, the amount for which I could sell my books or pictures would be the least of my ambition."

"Such is not the general opinion," said Fred.

A Drawback of Wealth

"Of course not," responded Mr. Fiske. "Every rich man is called hard and cold, and he has to be. If he yielded to every appeal, he would soon be a beggar, no matter what his ability to make money. I suppose that your remark is the result of my saying that I would not give you any money," and Mr. Fiske's voice assumed a hard tone.

"Not a bit of it," replied Fred. "I said it to make you give me a chance to disabuse you of the idea that I want any of your money. I had some once and lost it. Even then I would not have asked for it myself. You know that it was mother that asked and that you made the offer to me."

Feels no Resentment

"Of course I do. And I don't want you to think that I feel resentful at you for losing what little I let you have. It was an outright present and I told you that I never expected a cent of it back. I would give you as much again—or a good deal more—if I thought that it would be of any ultimate good to you. And I want to say right here, Fred, that at any time when any unavoidable misfortune may overtake you, that you can always count on me. If you should die, your little wife will be well taken care of."

There was a silence during which I guessed that Fred was wringing his uncle's hand. Then Fred spoke.

A Loan Returned

"I don't know how to thank you, Uncle. I know how good you are, but I can find no words to express it. I want you to feel, however, that I am worthy of what you have done for me, and as an earnest of it I wish to give you this."

"What is it, Fred?"

"That envelope, Uncle, contains the ten thousand dollars that you let me have

five years ago, with interest at six per cent."

"What!"

"Well, open it and see. It is all in bank notes."

"But I don't want it, Fred. I told you that it was an out-and-out present."

"I know it, and I know that I told you that I should return it some day."

"But I can't take back a present."

"Then give it to some charity."

"I might give it to some charity that you selected, if you said so, but don't you need it?"

A Snug Sum in Bank

Fred laughed and said, "No, Uncle. I have fifty thousand and a little more in bank now. What I do want, however, is to get some advice as to what to do with the fifty thousand. I made it in real estate options with a small remnant of what you let me have, and now I wish to get into something more stable."

The two then went into a discussion as of the particular ways in which Fred had accumulated his money. Finally Mr. Fiske said:

"But how does it happen, after you have been successful beyond the average young man, that you come to me for advice?"

The Value of Experience

"Well, I have found by experience that experience is valuable. I did not know the worth of it until I had bought some—with your money—and I can look back and see that what I regarded as ultra conservatism on your part, when you gave me that money, was the wisdom of experience. I disregarded it then, to a large extent, but it will be better heeded this time. I realize that a man can not have accumulated the wealth that you have, in any haphazard way. You have got rich and now I wish you to tell me how to get rich, too."

"Well, Fred," said Mr. Fiske, laughing in a pleased sort of manner, "if you think that there is any cut and dried rule or set of rules for getting rich, then you are mistaken. There are so many things that enter into the problem."

The Rules of Success

"But there must be certain rules which you observe, in the conduct of your own

business. You can at least tell me what they are."

"No; I have but few set rules. One, however, is to keep in the best of health. I do not believe that any man is at his best mentally unless he is in pretty fair condition physically. I do make it a rule to take plenty of exercise and to be moderate in the gratification of my appetites. This means a good constitution and a clear head at all times."

"That is good common sense. I will adopt your plan."

The Value of Time

"Another thing that I do is to take care of my time. I do not devote an inordinate number of hours to business, but I see to it that the hours that I do devote to it are devoted wholly to it. I do not allow my attention to be diverted by anything not appertaining directly to business."

"Another thing—and a very important one—is that I consider carefully what parts of the business I can devote myself to with the greatest advantage. There are many things that I can hire done much better than I can do them myself. I try to know my own capabilities and to use those capabilities in the best manner."

Keeping Posted

"Another thing is to know my business and to know that of my competitors, and to know both as thoroughly as possible. I do not mean to know every detail, but to know the groundwork—to know when one man is successful in a particular venture, why he is successful and to profit by that knowledge in similar circumstances."

"I could give you good advice, Fred, if you were in the same business that I am and I could doubtless say something that would be worth hearing if you were to point out some individual case, for my experience has been wide."

Think Independently

"But that brings me to another point. It is not safe to accept what I have heard called 'ready-made opinions.' Other people's experience is valuable, but there is a vast number of fallacies afloat, which are accepted by the world at large as axiomatic. Just because the great ma-

majority of people believe and think in a given manner is no reason why you should do so. Give due weight to the consensus of opinion, but reason the matter out for yourself. Regard it as if it were an entirely new subject on which you were bound to form an independent opinion, argue the matter with yourself, and then if your opinion is the same as that of the majority, well and good, but if it is different, study the matter again and again until you are sure that you are right and then go ahead. It may be that you will be the first to discover that time has changed a truism into a fallacy. You have heard of the 'saving minority.'

Cites the Constitution

"Because the constitution of the United States was the best document that the representatives of thirteen colonies with a population less than that of New York City today, could devise, it does not follow that that constitution is perfectly fitted to the needs of the largest civilized country on the globe. There is something for you to think about. By the same method of reasoning it can be shown that many of what are commonly considered axioms of business, are fallacious.

Brains the Main Thing

"But there is nothing that will supply the place of brains. I do not mean to contend that the more money a man has the more brains he has. Far from it. But I do know that there is a certain quality of brains that grasps the principles of making money and makes it. It is a gift, a talent. (Pardon the egotism.) It is just as much a gift as a talent for painting or music. But the gift can be cultivated and improved by experience and training and devotion, just as other gifts can. Ambition and love of money and power are great aids to it.

"But you wish my advice, Fred. You surely have not put fifty thousand away in bank without thinking what you will do with it. You must have some plans."

The Automobile Business

"Yes; I am going into the automobile business unless you make me think that

I can do better elsewhere."

"And what has brought you to this determination?"

"It is a new business and the opportunities are large."

"Very true. But there is no blazed path to success in it. It will be necessary for you to form your own judgment on many, many points, and failure to form a correct judgment, even in one case, may lead to disaster."

"I can well understand that, Uncle, and that is one of the reasons why I want your advice. Perhaps you can help me to steer clear of some of the troubles."

Mistakes A'most Certain

"Well," said Mr. Fiske, slowly and thoughtfully, "my first advice would be to prepare for the almost inevitable mistakes, in a business of this character, which, in your case, means beginning small and feeling your way. When you have found that you are on the right track and are making money, follow it up. But remember that the business is new and that changes are liable to occur in it that will make it necessary for you to change your methods. This will mean need for money and I would, therefore, never allow myself to get to the point where I would not have a reserve fund to draw upon in case of emergencies.

Keep Cost Down

"With a small capital, it will be necessary for you to make vehicles which will not cost a great deal to make, and, consequently sell at a moderate price. You must remember that the smaller the selling price the greater is the per cent of profit that can be charged. Don't, with your small capital, invest a large part of it in machinery that will have but little value to any one but yourself, and which, if sold under pressure, would bring but a small portion of what you paid for it. You can get a large portion of your work done as cheaply as you can do it yourself, and you can then insist on its being done right before you pay for it.

Watch Other Makers

"Another thing which you should not fail to do, is to keep posted on what others in the same line of business are

doing. There are trade papers. Study them all until you have found which one or ones are the most reliable and then read it or them religiously from cover to cover, advertisements and all. It will pay you to keep posted. You can not afford to neglect it. Also use all other channels at your disposal to keep informed on what is going on in the business.

Avoid Experiments

"And while you are getting started, do not attempt to manufacture vehicles that will be superlatively good. I have had a good deal of experience with motor vehicles and I know that none of them are perfect. What you should do, is to manufacture a vehicle that will go, and that will keep going. Do not encumber it with a lot of what you may think will be improvements, but which you will probably find are only annoyances. When you have the time and the money that you can devote to experimenting, do it, but don't let your customers try your experiments for you. You can never build up a reputation in that way. And now is the time, when the business is young, to lay the foundations for a good reputation. It will be worth everything in years to come.

How to Advertise

"Build a good reliable vehicle; advertise it in the journal, or journals, that your own reading has convinced you is reliable—for the advertising as well as the reading pages of an unreliable journal, are regarded with suspicion. See

that you keep in touch with your customers, so that you may know with what degree of satisfaction they regard their purchases, after they have been put to actual use. Read your correspondence carefully, to see what the wants of prospective customers are, and cater to the wants of the largest number. Give the people what they want. That is the way to get customers.

Ready to Digest

"There! I surely have given you all the advice that you can digest for a while."

"Not a bit too much, Uncle, and I am a thousand times obliged to you. I am afraid I have taken up too much of your time already."

"Not a bit of it, my boy, although I will confess that I am a bit sleepy. But I will be in Chicago again in about two weeks and if I can be of any service to you then, let me know. I'll send you a note when I arrive."

"Thank you. I will call on you in any event. And so you like the automobile business?"

"Yes, Fred; I agree that it offers the man with limited capital phenomenal opportunities for success, but, like any new business, the danger of making mistakes is immense. I believe you will succeed in it, however, if you are sufficiently cautious and thoughtful."

The two rose and started away, discussing the disposal of the contents of the envelope that Fred had given to his millionaire uncle.

EASTMAN COMPANY'S NEW QUARTERS

The Eastman Automobile Co. has removed from Payne Avenue to more convenient quarters at 60 High Street. It has two floors of the building, each 90x60 feet. The upper floor will be used in the manufacture of the company's well known metallic body, with office and show room, while the other floor will be used in the production of the company's steam vehicle. The quarters are only tempo-

rary ones and they will not suffice long for the company's promising business. Next spring larger quarters will probably be found.

The Eastman company is negotiating with several large manufacturers of steam vehicles for the use of its body and in anticipation of this it is preparing to turn out at least fifty bodies a day.

H. J. Hayes of the company returned

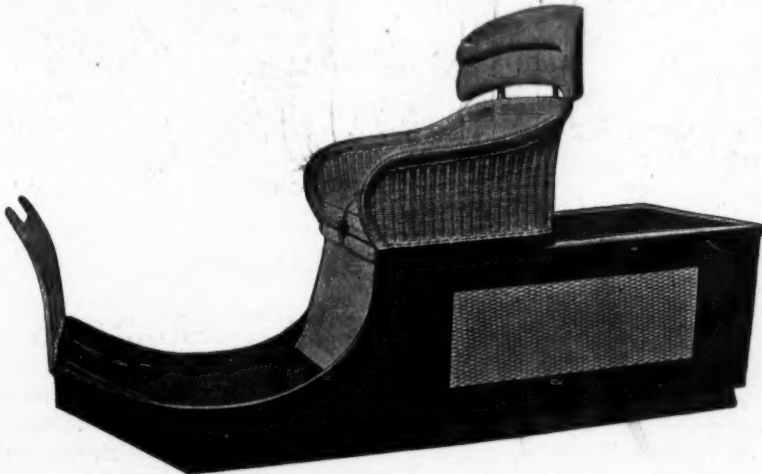
from New York a few days ago after visiting both the automobile shows and calling on the leading makers in the East. He states that the prominent makers, especially those who build steam vehi-

cles, that it will not warp out of shape and it admits of a high enameled finish which can be put on in a few hours and which is much more durable than the carriage finish. He stated that manufacturers



cles, are now fully convinced that a metal body is an essential feature of a practical automobile and the majority of them favor the Eastman body, especially because of its distinctive feature of having an

are experiencing the greatest difficulty in securing prompt deliveries on wood bodies and many concerns are being held back from this cause alone. The wood bodies require weeks to finish properly



asbestos lining. This muffles all sound, keeping it within the vehicle and at the same time keeps in the heat of the boiler and burner which is sometimes annoying to the person in the seat. Of course the chief features of the metallic body are

and this finish is liable to be injured in transportation to say nothing of the fact that it is likely to be spoiled entirely through carelessness in lighting the burner of the vehicle.

The Eastman company is now prepared

to furnish bodies to suit the purchaser and it has standard bodies ready for delivery that will fit the Locomobile, Mobile, Baldwin, Milwaukee and other standard steam carriages. The body frames are made with one piece of 1½-inch angle iron extending entirely around the base with 1-inch angle iron for the frame, allowing the panels to be attached. Two styles of these bodies are

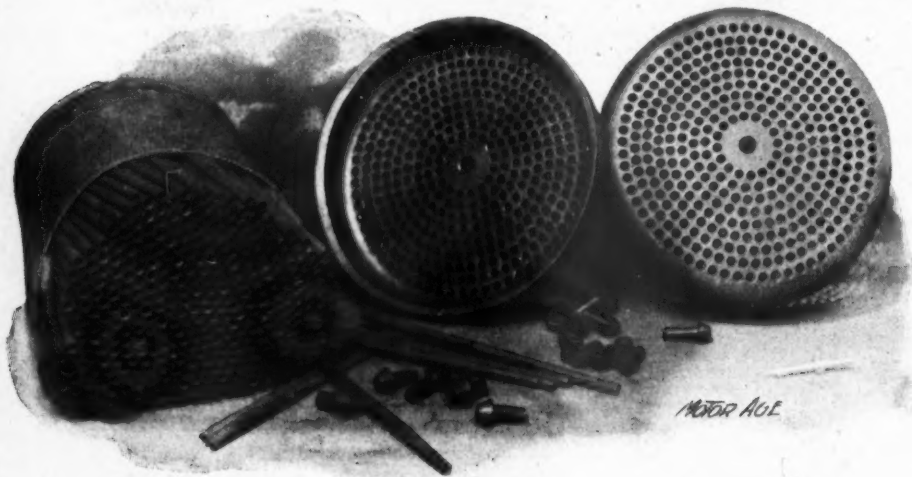
shown in the illustrations. Wood has been entirely eliminated from the construction of these bodies, both the sides and flooring now being made of steel. The first illustration shows the plain body with ferruled seat while the second shows seat and panels of wicker design.

D. E. Foot, formerly well known in the bicycle tire trade, will go on the road for the Eastman company on Dec. 1.

A STEEL TUBE BOILER

J. A. Bechtel, superintendent of the Hawley Down Draft Furnace Co., of Cincinnati, recently designed and started to manufacture a line of small boilers for

Mr. Bechtel is an advocate of an all-steel boiler for motor vehicle work and he predicts that manufacturers will abandon the copper flue boiler after it



BECHTEL'S BOILER PARTS, UNASSEMBLED.

automobile and launch purposes. Orders for a number of these boilers were accepted from vehicle manufacturers when last week the plant of the concern was almost completely destroyed by fire.

Mr. Bechtel was seen in Cleveland a day or so ago where he was buying machinery for the immediate equipment of a new plant and he figured that he would be in a position to turn out product within sixty days. A considerable portion of the new plant will be devoted to the production of small boilers.

has been more thoroughly tested. The copper tube is a better transmitter of heat, but, in his opinion, that advantage is more than counterbalanced by the fact that the copper flue is much more liable to burn out than the steel. A view of the unassembled parts of the fire tube boiler designed by Mr. Bechtel are shown herewith. It has 360 tubes each 14x½ inch of cold drawn seamless steel tubing. The shell is of fire box steel, having a tensile strength of 53,000 pounds. The boiler proper measures 16x12 inches, al-

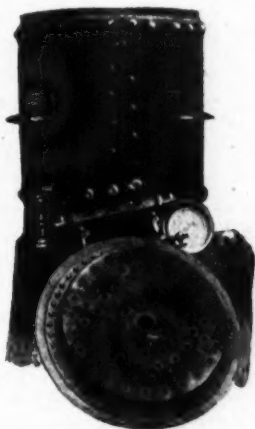
though any desired size will be built, and it is rated at 6 horsepower at 225 pounds working pressure.

In the construction of the boiler all holes are drilled, not punched, and all rivets are nickel steel. In the burner there are eighty draft flues and surrounding each are 26 flame holes each 1-32 of an inch in diameter.

Mr. Bechtel has also designed a water tube boiler, adapted to automobiles, but on account of the accident to the factory, it will be impossible to commence marketing it for some months.

Mr. Bechtel is of the opinion that users of steam automobiles will sooner or later find it to their advantage to give considerable attention to the kind of water used in boilers. It is not generally known that certain kinds of water, especially that known as "hard water," contain substances which cause scale or pitting of the flues; the former greatly increasing the amount of fuel required for generating steam, and eventually ruining the boiler. The Hawley Down Draft Furnace Co. has given careful study to the question of preventing boiler scale

and has equipped a number of manufacturing establishments with water purifying plants. Mr. Bechtel states that users of steam vehicles could arrange such a plant on a small scale for their home



Bechtel's Boiler and Burner

supply of water, at a very small expense. His company is prepared to make chemical analysis of samples of water and to furnish formula for proper treatment to those interested in the subject.

EXPERIMENTS WITH THE BANKI MOTOR

Prof. E. Meyer of Gottingen, Germany, has contributed to the *Zeitschrift des Verienes Deutscher Ingenieure* a series of articles on his experiments with a twenty horsepower Banki hydrocarbon motor, at the works of Ganz & Co. at Budapest. He handles the subject of his experiments with this engine, in which a supply of water is injected into the cylinders of the motor simultaneously with the liquid fuel, in a studious and masterly manner. The object of the injection of the water is two-fold. It cools the cylinder to such an extent that it allows of a much higher compression than can be obtained in the ordinary manner, without premature explosion of the fuel—due to the combination of great heat and high compression. Also the heat of the combustion

converts the water into steam and the expansion of the steam adds to the power of the expanding hydrocarbon gases.

The article is copied, in part, in the November number of the *Automotor Journal* of London, which comments on the experiments as follows:

The economy in consumption of fuel effected by the combination of high compression and water injection appears to be considerable. The old Banki motor working at a compression of about 5 atmospheres used to consume about 1 pound, or approximately .5 kilogram, of benzine per horsepower hour. The power of the motor which had this consumption was about 4 horsepower. The new type of motor with which Professor Meyer experimented is a 20 horsepower ma-

chine, so that the figures are not quite comparable. But we may take it that a 20 horsepower Banki motor run on the old lines would not have consumed less than three-quarters of a pound, say, .375 of a kilogram per horsepower hour. The benzine consumption per horsepower hour in the new type of motor with water injection comes out at .242 kilogram. This shows a very considerable economy of fuel consumption on the part of the new motor as compared with the old. It is not quite possible to decide how much of this increased economy is due to the injection of the water, and how much is due to the increased compression which, by injecting the water, Professor Banki has been enabled to use, without risk of pre-ignition. It is interesting to notice, in this connection, that in Banki's British patent, which refers to the injection of water into the explosive mixture, he states the object of it to be the prevention of premature ignition in engines working with high compression, and he also adds a statement to show that this method of cooling does not appreciably impair the efficiency of the engine. It therefore appears obvious that at that date, at any rate, Professor Banki did not anticipate any actual gain in efficiency from the water itself.

When we come to compare the Banki motor with the Diesel motor we are struck by several things. Among these are: (1) Professor Banki is enabled to work with a very much increased compression compared with that which he had hitherto employed, by the use of the water injection. The compression, however, which he does attain to is very far short of that at which Diesel works. (2) Professor Banki does not require any compressed-air paraphernalia for injecting his oil into the cylinder, but against that one would expect to find that he has a good deal of trouble in starting his engine; Diesel's compressed-air reservoir, once he has got it full of high pressure air, enables him to get over that difficulty very nicely. (3) Professor Banki uses an ignition tube; Diesel does not, and this is a point which seems to us to be very much to the disadvantage of the Banki engine, though, as will be shown

below, it is questionable whether this feature is an essential one. The result is that Diesel could control the point at which the ignition commences by altering the moment at which he injects the oil into the cylinder. This Banki, in his present form of engine, would probably be quite unable to do, although it would appear that he might to some extent hasten or retard ignition by varying the amount of water which he injects.

When we come to consider the possibilities of applying either of these motors to the propulsion of motor vehicles we are confronted by several objections which may be urged against either. Against the Diesel it would naturally be brought forward that the enormous compression employed, with the necessary resulting large fly-wheel and the necessity for employing compressed air, are serious disadvantages. On the other hand, if the fly-wheel difficulty could be satisfactorily got over, the ease in starting, the power of controlling the instant of the explosion, and the capacity of Diesel's motor for using almost any type of fuel, ought to be very great advantages. Against these Banki would necessarily have greater difficulty in starting, and would be unable, with anything at all closely resembling the type of motor which Professor Meyer describes, to adequately control the instant of his explosion. The importance of this point in the employment and adaptation of explosion engines to the propulsion of motor vehicles has been so frequently dwelt upon that it is unnecessary to dilate upon it here.

There is another aspect of the question, however. There is a possible way of using the Banki motor which, strangely enough, does not appear to have occurred, so far as we are aware, either to Professor Meyer or to Professor Banki himself, and which, if it were to prove successful, would enable the Banki motor to combine the advantages which it obtains from the injection of water with certain of the advantages appertaining to the Diesel engine. It will be seen that Professor Meyer found that when working with the ignition tube arranged and heated with the lamp as shown, and with

the high compression mentioned, as soon as the supply of water spray was cut down below a certain point the engine began to knock, and if the supply of water was still further reduced in the engine stopped altogether. This, of course, means that when the water supply is diminished, the degree of compression being maintained the same and the ignition tube still kept incandescent, he got premature ignition. Why did it not occur to Professor Meyer to remove that ignition tube and increase his compression until the charge ignited itself on compression, go on increasing the compression until he caused knocking owing to premature ignition, and then turn on his water spray till he got the ignition right? He would then have had an engine which was working without an ignition tube, a very great advantage, especially in motor car practice, and one in which the ignition point could have been to a certain extent controlled by the admission of the water spray. Whether the degree of compression would have been in this case unmanageably high is just the kind of thing we want to know, for if it were not, a motor working on these lines would have an undoubted future before it for motor car propulsion. In any case, to work with water admission at one end

of the cycle and that clumsy device (an ignition tube) at the other, seems a most untenable position to take up. It suggests cutting off the string at one end and tying on the piece cut off at the other.

We must, however, bear in mind that the progress of every invention always shows, for a length of time, indications of the circumstances under which it first took form. The Banki engine was originally designed as a stationary upright engine for driving machinery, mainly agricultural. The question of weight consequently did not come in, and there was no objection to giving it as much fly-wheel as it wanted. Professor Banki's present motor is, as we have pointed out, practically the same machine with certain additions made for the purpose of scientific experiments in regard to fuel economy. With the assistance of the data which he has in this way obtained, we should not be surprised if Professor Banki, with his inventive ability and his very great scientific and technical knowledge of the problems involved, were to, before long, present the world with a modification of his motor adapted for vehicle propulsion and possessed of features of undoubted interest, importance and value.

DEITERICH SPEED-VARYING GEAR

The following description and illustrations are borrowed from the American Machinist:

It is, we believe, a feature of all the numerous friction-driven speed-varying devices in use that, apart from slippage of the parts as a whole when overloaded, there is a differential slippage inherent to their fundamental construction. In the customary friction disks this is due to the different velocities at different radii of the disk which drives by its face, and in the cone friction in its various forms to the different velocities at different points in the length of the

cones. Excellent mechanical authority has, in fact, considered this feature to be unavoidable in a speed-varying device.

The device which we illustrate herewith overcomes this feature and with it slippage due to overloading. Friction is employed, it is true, but as a locking force in the form of a friction pawl, similar to the application in daily use as a clutch for driving punch presses. The drive is, in fact, as positive as that of these clutches. Still another feature is that by which the speed is automatically adjusted to the load. When applied to a

bicycle, for example, the "gear" of the machine will automatically adjust itself to the grade of the hills being ridden. Should the grade increase, the gear will be automatically reduced; and should the grade grow less the gear will be increased. Within the limits set by the construction a rider may traverse a road of varying grade with a constant pressure on the pedals. Could he be blindfolded and not see the road or his varying speed he would go from one grade to another without knowing the difference.

We think a mechanism having such properties may fairly be called remarkable. It is easy to criticise; it is complicated, and it certainly is more complicated than a sprocket and chain; but complication is a matter which is to be considered alongside of the results accomplished. Even those who would criticise this gear the most strongly on this basis cannot deny that the device is of the highest degree of interest.

The automatic feature is not a necessary part of the device and we shall first describe it without this feature. Except for the later figures, which show the rear hub of the bicycle equipped with the device, the illustrations are to be understood as diagrammatic only, and not as showing practicable construction.

In Figs. 1 and 2, *a* is the driving and *b* the driven shaft, the two being in line. Upon the former a disk *c* and upon the latter a similar disk *c'* are keyed. Radial arms *d e* are mounted loosely upon shaft *a*, and by friction pawls *f g* may be driven to disk *c* when the motion is in the direction of the arrow. Arms *d e* are slotted, as shown, and by pins within the slots drive wheel *h* mounted in bearing *i*, which is supported by the sliding bar *j*. Wheel *h* is shown eccentric to shafts *a* and *b*, and this eccentricity may obviously be adjusted by sliding bar *j* in its supports. It is by this adjustment that the speed ratio between *a* and *b* is varied. A second wheel *h'*, seen in Fig. 2 only, is keyed to the same shafts as *h*, and by a pair of radial arms *d' e'*, pawls *f' g'* and disk *c'*,

precisely similar to those at the left, wheel *h'* drives shaft *b*.

If the bar *j* be adjusted to bring the bearing *i* concentric with shafts *a* and *b*, it is clear that the entire mechanism will lock itself together and revolve as one piece. Should, however, bearing *i* be eccentric to *a* and *b*, as shown in Figs. 1 and 2, a very different action will result.

In the positions shown, the tendency of disk *c* is to drive both arms *d e* at the same speed, but arm *e*, engaging wheel *h* at a greater radial distance than *d*, will tend to drive *h* faster than will *d*. The wheel *h* will therefore be driven by *e*, and since all parts of the circumference of *h* must travel at the same speed, *h* will drive *d* faster than disk *c* tends to drive it. The result will be the loosening of pawl *f* and its sliding along its disk. This will continue until the arms reach the horizontal line *x y*, when both arms will engage wheel *h* at the same radial distances and, for the moment, both arms will drive. As the motion continues, arm *d* becomes the driver, *e* being in turn driven by *h*, its pawl slipping along disk *c* as the pawl of *d* did before.

It is clear that in consequence of the eccentric position of *h*, a half revolution of *a* drives *h* through the arc which is above the line *x y*, which is necessarily more than half a revolution, and the action being continuous, wheel *h* hence revolves faster than disk *c*. Wheel *h* drives shaft *b* in a precisely similar manner, the effect of the right-hand mechanism being added to that at the left. It is clear that if the speed of *a* be uniform that of *h* will not be, and, moreover, that the speed of *b*, as compared with *h*, will be irregular, the final effect on *b* being the sum of the irregularities due to both sets of radial arms. This addition of the two irregularities is, however, due to the fact that the two sets of radial arms are arranged to act in the same phase. If, instead of arranging the two sets of pins as shown, they were set at right angles with one another, the two irregularities would offset one another and a regular speed at *a*

would be delivered as a regular but increased speed at b. This arrangement is, of course, the one which is actually used. Also three radial arms per set instead of two, as shown, are in reality used.

It is clear that such a device applied to a bicycle would give a variable gear, which, however, would require to be adjusted by hand to suit the conditions or the rider's fancy. It remains to show the principle of the automatic feature, which is, we believe, entirely unique. This principle is to so connect the arms d e and d' e' to the rings at h and h' that the forces transmitted shall have components tending to change the eccentricity. Matters are so arranged that the driving force tends to reduce the eccentricity while the resisting force tends

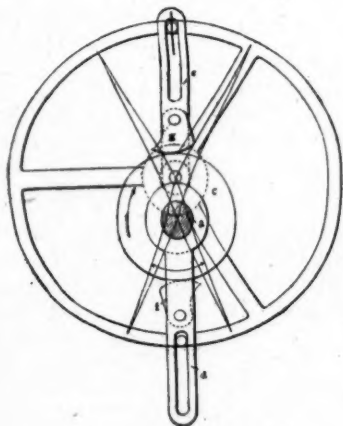


Fig. 1.

to increase it, and there is thus a constant fight between the two forces. Any change in the resisting force is thus followed by a change in the eccentricity, an increase in the ratio of the forces being followed by a reduction in the ratio of the speeds and vice versa. This remarkable result is accomplished by inserting toggle links in place of the pins by which the arms d e drive the wheel h, and similarly in place of the pins on the driven side. This construction is shown in Fig. 3, the parts being, however, in the concentric position. Toggles k l m, drawn in heavy lines for

greater distinction, are upon the driving side, while n o p are on the driven side. It is clear that in the concentric position shown the device will lock itself together and revolve as one piece, similarly to the construction shown in Figs. 1 and 2, but that the effect of each toggle link is to produce a radial pull tending to displace the wheel h. In the concentric position shown these radial pulls will mutually balance one another, and in this limiting position there can be no automatic action. To introduce the au-

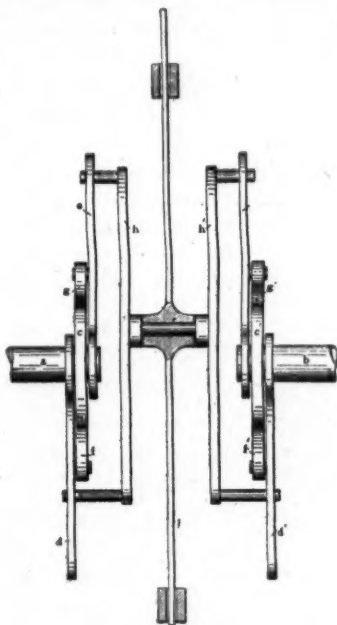


Fig. 2.

tomatic action it is only necessary to insert a stop which will prevent the parts from quite reaching concentricity. The wheel h is, of course, guided as to the direction of the eccentric movement by a bar, such as j, Fig. 1, the direction of this movement being, as before, vertical. If the wheel be raised slightly to an eccentric position all of the toggles of the first set, except k on the upper side, will be released by the slipping of their pawls, and similarly all of those of the second set, except the lower one o, will be released, the result being that these acting toggles of each set oppose

one another. By this movement of *h* the upper toggle will be somewhat opened out or flattened, while the lower one will be somewhat folded up. Suppose the forces are such as to be initially in equilibrium with *h* in such an eccentric position, and suppose the load be increased. This increase will be carried to the wheel *h* and the pins which connect it to the toggle links. The pressure on the acting pin of each set must be the same, as change of force in the system can only arise with change of speed. The action of the link *k* is to reduce the eccentricity, while that of *a* is to increase it. Toggle *k* being, however, the flatter of the two, it prevents and the final result is to reduce the eccentricity which reduces the speed, as it should to meet the increased load.

The device has been applied to bicycle construction in the Columbia bicycle works. As thus applied, it has little structural resemblance to the diagrams so far considered, and is, in fact, inverted. In addition to this the piece corresponding to the ring *h*, of Figs. 1, 2 and

set of toggle links connecting the rings *c c c* to the piece *f* which corresponds to the wheel *h* of Fig. 2. This piece revolves in bearings *g g*, the ball races in the support *h* being eccentric to the sta-

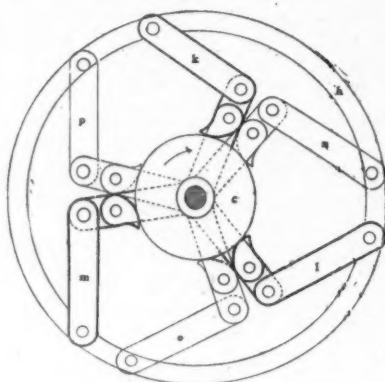


Fig. 3.

tionary axle *i*, so as to permit the bodily swing of *f*. At the right the pieces are repeated for the second set as lettered, the motion being finally carried to the

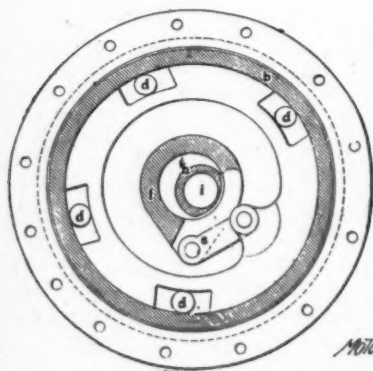


Fig. 4.

3, swings on the arc of a circle instead of being guided in a straight line. Fig. 4 shows sections of a rear hub having the device enclosed within it. At *a* is the sprocket which is secured to the shell *b*, which corresponds to the disc *c* of the previous figures. At *c c c* are three rings with roller clutches *d d d d* connecting them with the shell *b*, these clutches corresponding to the friction pawls of the previous figures. At *e* is one of the first

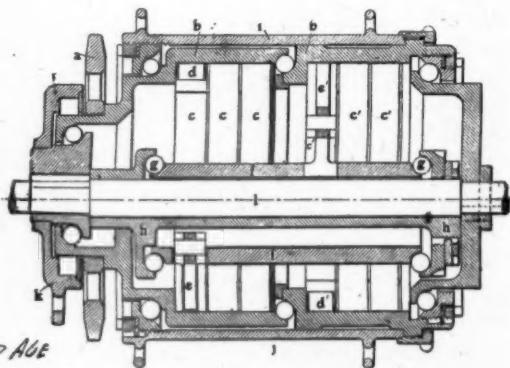


Fig. 5.

shell *j*, to which the spokes are attached. The piece *k* is part of the coaster brake and has no necessary connection with the device being described.

There are more fields for the application of a successful device of this kind than would be imagined at first sight. Its application to machine tools is obvious. Applied to gas engine automobiles, it would enable the engine to run at a fixed speed, and on electric auto-

mobiles it would substitute a constant speed motor for the present series wound machine and put a starting box in place of the controller. It has been suggested to apply it to freight elevators, where, with a constant engine or motor speed and torque, it would give a variable speed to the platform in accordance with the weight being lifted. On cotton and other presses it would reduce the speed and increase the pressure as the compression proceeded. In an inverted form it might be made to connect a lighting dynamo with the axle of a railroad car—the speed of the dynamo being constant regardless of the speed of the train above a certain limit. In a similar way it might make the driving of dynamos by wind-

mills practicable. We do not, of course, mean to predict that this device can be successfully applied in all these places, but the list will give some idea of the possible field for devices of this character.

It should be noted, as regards the mechanical practicability, that the roller clutch on which it depends is in wide use under severe service in punch and other presses, and that, as regards the links and pins, their duty is small because of their slight amount of motion relative to one another.

This device is named from its inventor, the Dieterich gear and is controlled by the Dieterich Gear Co. of 863 Asylum Avenue, Hartford, Conn.

AN AGRICULTURAL AUTOMOBILE

INVENTION OF A CHICAGOAN WHICH FIRST ATTRACTED ATTENTION IN PARIS—HE EQUIPS A MOWING MACHINE WITH DETACHABLE MOTOR.

Although France is the home of the automobile and motor vehicle attachments, to America belongs the honor of one of the most valuable of these, says the Chicago Chronicle. The automobile mowing machine could have been conceived and executed by none other than an American. It is the application of the motor to horses' drudgery, to not only lighten but to facilitate farm work for men as well as horses. It is a comparatively simple machine and yet one which has more uses than that for which it is designed.

A Chicagoan's Invention

During the last summer there have come numerous reports from in and about Paris concerning the automobile mower. All of these reports have given Paris credit for adapting the motor to farm use, yet it was an American and a Chicagoan who made the one machine which was successfully shown at the exposition. This machine was a part of the exhibit of the Deering Mfg. Co., and while in France it was handled by its builder, J. F. Steward.

There was probably no exhibit in the mechanical department of the exposition which created a greater interest than this automobile. The Parisians, who have become the prime movers in the automobile craze which has seized Europe and this country, were surprised and delighted with this new device. The machine was by no means confined to the showrooms or to the exposition grounds, although the judges' tests were held there. Early in July it was taken out into the country near Paris and given the most thorough tests and again later in the season it was shown in an exhibition conducted by the Meux Agricultural society at Mitry-Claye.

Tests are Sufficient

The tests in each case were sufficient to satisfy the European agriculturists that the American machine was the most practical of its kind. It did the work with far greater ease and rapidity than could the best of the horse mowers. It cut a clean, straight swath five feet wide and was manipulated in the field with perfect ease. As a result of these ex-

periments Mr. Steward has received inquiries from all parts of the world, and a remarkable demand has already sprung up for the machine. As yet it is not on the market, but in consequence of the demand the Deering company is preparing for its manufacture.

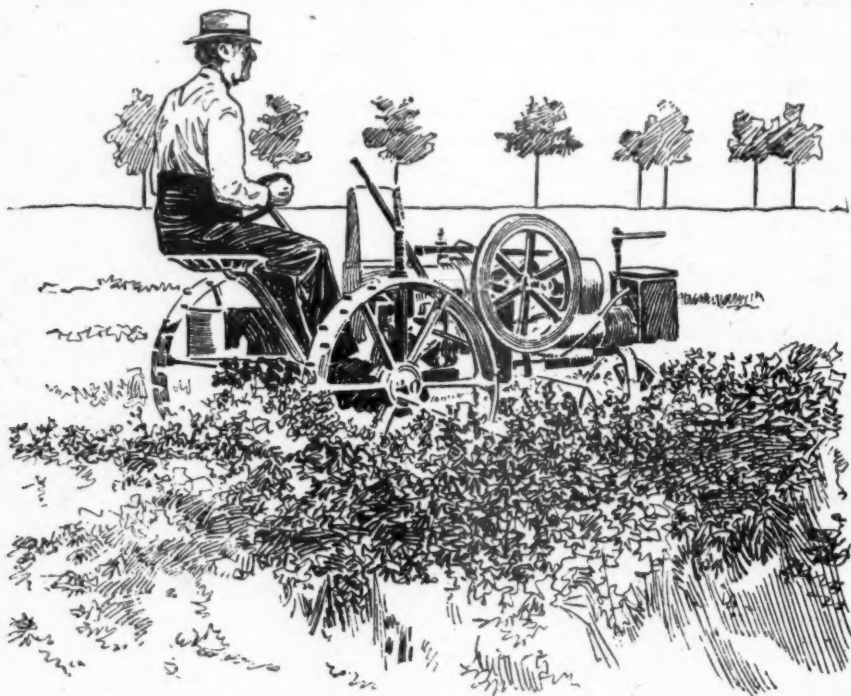
What the Machine is

But to tell what the automobile mower is—and the accompanying illustration gives a very clear idea of that—it is a light, compact, easily handled affair with a pleasing paucity of mechanism. It is

may be used for stationary work. Indeed, it was the plan of the builder to produce a machine which could be used for general work about the farm.

Detachable Engine

Upon the removal of the cutter bar the motormower stands a neat, handy little engine, which may be used either for traction or stationary work. It may be run onto every acre of a farm or upon the road if necessary. The general adoption among farmers of the gasoline engine for stationary work, such as corn



J. F. STEWARD USING A MACHINE IN A FIELD NEAR PARIS.

unnecessary to describe the mower, which is the regulation Deering "Ideal," with a small third wheel in front to support the small gasoline engine. The engine is of the two-cylinder horizontal type which was found to be superior for this work to the vertical engine, which, although high speed, gives a decided jerking motion. This motion caused such a jarring of the cutter bar that an uneven cut resulted and there was a decided waste in the harvesting of the crop. The engine is of about eight horsepower and has a belt wheel attachment, so that it

shelling or husking, grinding, thrashing or pumping, has resulted in the adaptation of the motormower for this work. It is thought to be a considerable advantage that the engine is mounted on wheels, as it can be moved about at will. Roller and ball bearings minimize the machine's draft. The driver's seat is the usual sulky-mower seat with the steering brake directly in front of it and the power lever at the right hand.

Many Experiments

In 1894, when Mr. Steward first undertook the construction of the motormower,

the automobile was far less complete than it is now. The model which he made that summer was far from satisfactory when put to the test. It was the early determination of the Deering company to send a motormower to the Paris exposition, and with this end in view Mr. Steward continued his experiments. As a result it was a thoroughly tested and very complete machine which he took to France last summer. It was a machine ready for the market and the model of that which is about to be placed before the American public.

Steward Talks of his Work

Mr. Steward, who, by the way, is one whose name has long been connected with the latest devices in farm machinery, talks modestly of his recent work and the possible outcome of it.

"The gasoline engine is the salvation of the farmer for light work," he says. "It can and will be applied to any of the lighter machines, but for the heavier work it will not be serviceable because of its limited power. I have already tried the gasoline engine on our corn planter and found it successful, and it can be used on other machines of that nature, but for plowing and work of that class it will not be used. In France the automobile mower was carefully tested

and was conclusively proven to be the greatest success. We have had letters from all over the world asking about it, and it is my opinion that when it is placed upon the market it will have a large sale. The engine is useful for so many things that it will prove an economical investment, while of course if it were simply a mower it would be rather an extravagant investment for the average farmer."

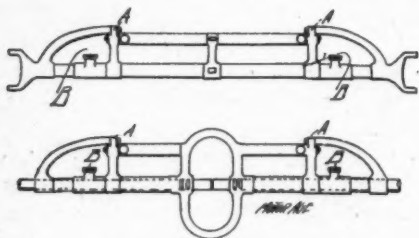
It is safe to say there has been no agricultural machine brought forward in the past five years which created the universal interest among farmers that has already been aroused by the motormower. It is interesting to the automobile fancier as well as to the farmer and to the mechanic, since it is one of the first practical appliances of the automobile idea to do the work of the country horse. It opens up a field of possibilities along the same line which builders of farming implements will not be slow to grasp. If what Mr. Steward says is true, and no one would doubt it, the engine will not relieve farm horses from drudgery, but it will make some of their work lighter and it will give them a chance to live more like animals and less like machines than has been their lot during the past century at least.



WEEKLY PATENT OFFICE BUDGET

MOTOR-VEHICLE WITH SIDE SPRINGS—A GREAT HILL CLIMBER—AUTOMOBILE FRAME A LA BICYCLE CONSTRUCTION—FLEXIBLE DRIVING WHEEL CONNECTION—YIELDING DIFFERENTIAL GEAR SUPPORT.

This batch of patented automobile inventions is interesting because it covers a wide scope of thought and illustrates the great number of topics which comprise the auto problem. Each week several motor-vehicle patents are allowed and each of them presents different



Parker's Side Spring Vehicle Frame.

points for consideration. Standardization of motor-vehicle construction is 'way, 'way out of sight in them. The industry is one of great diversity of needs and methods; it offers a multitude of unfolded opportunities.

AN ODDITY IN RUNNING GEARS

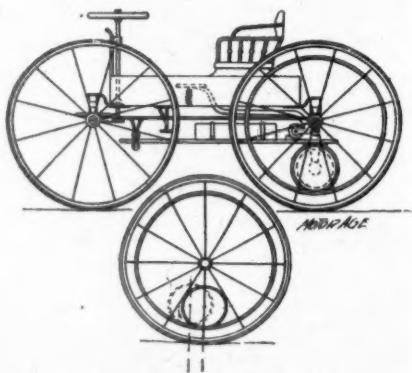
Letters patent No. 662,298, dated November 20, 1900, to Frank R. Parker, Penacook, N. H.; motor-vehicle frame. Nine claims allowed.

Seldom, if ever, have commercial motor-vehicles been built in this country with the body supported on semi-elliptical side springs running from front to rear axle, it being almost the universal practice to support each end of the carriage body on independent springs. This patent, however, relates to a running gear in which the side springs are employed, the body being attached to a small square tubular frame mounted on the top and central portion of the springs.

The main frame of the running gear is rectangular with wood side reaches to furnish a limited amount of elasticity for

compensating for irregular roadways. At each end of the frame is hinged a transverse truss frame to support the axle. The front and rear axle rocker-frames are here illustrated. These are hinged to the main frame by the knuckles A A. The front and rear ends, respectively, of the side springs are attached to the rocker-frames at B B. The end trusses are thus capable of swinging upon their hinges within the limit of movement of the ends of the side springs. The counter-shaft driving sprocket is supported by an arm hinged to the rear axle so that the distance between the counter-shaft and the rear axle will remain constant.

Just why this inventor goes to the trouble to devise rocker end-trusses in order to compensate for the extensibility of side springs when the necessity can



Robertson's Friction Drive.

be obviated by the use of independent front and rear springs, is a mystery.

ROBERTSON'S GREAT IDEA

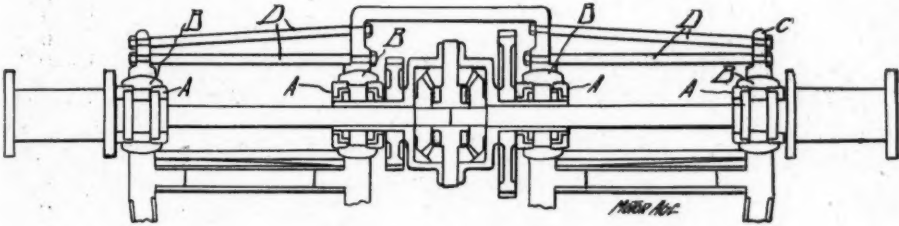
Letters patent No. 662,026, dated November 20, 1900, to Robert B. Robertson, Topeka, Kans.; frictional power transmission device. Three claims allowed.

That individual to whom orators and

preachers occasionally refer as the "one idea man" is best exemplified by the inventor who once during the course of a lifetime gets a firm grasp on a commonplace notion which glitters before his eyes like a real gold brick, but which eventually turns out to be a very poor imitation. For instance, the writer recalls a friend who professed originality in conceiving the idea of a ball bearing fifth-wheel for buggies. About the same time that a patent was refused him on the grounds that his invention was stale he lost interest in fifth wheels and disheartening experiments; but he clung to his ball bearing, which was a wonder of the thirty-second degree, and soon rose before the local public, happy and hopeful, with a ball bearing sausage grinder.

wheel spokes. The motor and its appurtenances are placed on the platform. Lest the weight of the platform, motor and rollers do not afford sufficient driving friction, the inventor provides a hinged arm with roller bearings on the rear end of the platform and spring connection at its forward end with the floor of the vehicle body. The weight of the body and its occupant thus helps on the good cause, says the inventor.

In explaining the driving action of the rollers the patent specifications state with child-like innocence that if the small wheel or roller is revolved forwardly it will immediately tend to mount the incline of the circular track to a position indicated by dotted lines in the accompanying rear wheel diagram, thus shift-



DOOLEY'S REAR AXLE FRAME.

That was several years ago; probably by this time he has lugged his one insecure, hesitating idea through a dozen trades and landed with freshly stimulated fervor on a scheme for reducing friction in church choirs.

He had but one idea and he was loth to lose it. There are many like him, as the patent records prove. Sir Robert of Kansas is apparently one of the clan. He has a transmission device which is so sublimely elementary that it can hardly be anything else than the enduring scheme of a one-idea inventor. When it fails to create a commotion in automobile circles it may make its appearance in the garb of a merry-go-round propeller.

The invention comprises a platform suspended under the vehicle body by a bracket at the front end and provided with an axle at the rear having flanged wheels which roll on the inner peripheries of rings or flanges secured to the rear

ing the center of gravity of the road wheel from the normal vertical line toward the forward vertical line, which action, by a well known law, will tend to roll the wheel forward. The explanation continues that this mounting of the wheels toward the position shown by the dotted lines aids very materially in climbing grades. So much, in fact, does Robert think of this mounting idea that he has ingeniously contrived to hinge his motor platform at its forward end by means of a roller bracket which will allow platform, motor and rollers to run ahead as the rollers "mount the incline." Just what happens when the rollers get up the incline is a question too trivial to worry the noodle of a one idea inventor.

DOOLEY'S DIFFERENTIAL FRAME

Letters patent No. 662,372, dated November 20, 1900, to Thomas B. Dooley, Malden, Mass., assignor to Everett D.

Wiggin, trustee; means for supporting the rear axle compensating gear of an automobile. Six claims allowed.

The principal feature of this invention is the rear axle frame in which is mounted the compensating case, and its object is to afford normally rigid connection between the operating parts with sufficient yielding to prevent torsional strains from affecting the gears.

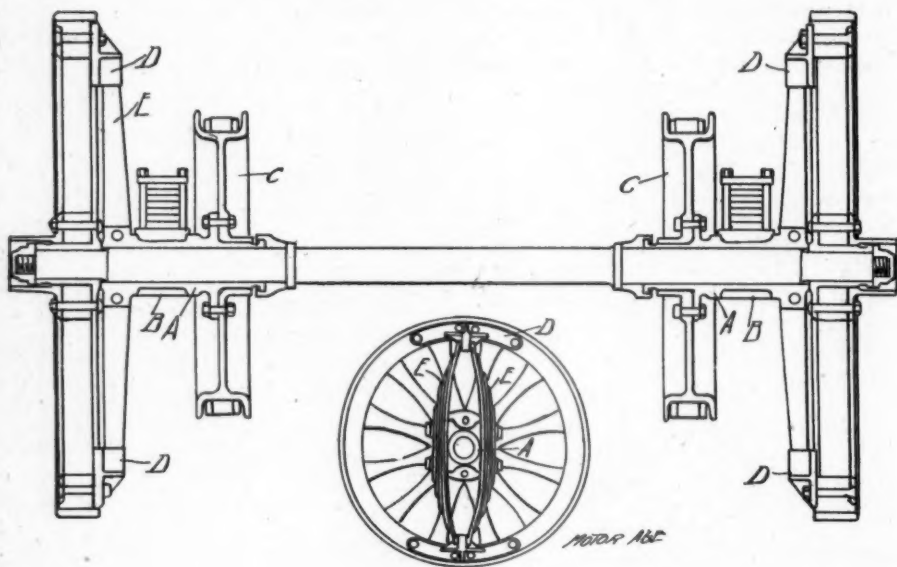
At the respective ends of the divided rear axle are roller bearing hubs A A A A, each within a ring B having a segmental outer surface. The two inner

A A A A will not bind. In the words of the patent specification, this system of gear bracing affords an "efficient give-and-take means" for compensating for elastic movements of the frame and body.

THORNYCROFT TRANSMISSION GEAR

Letters patent No. 662,207, dated November 20, 1900, to John E. Thornycroft, London, England; sprocket and chain driving gear for motor-vehicles. Three claims allowed.

This patentee is the designer of the



THORNYCROFT'S ELASTIC DRIVING CONNECTION.

rings B B carry the gear casing, which is mounted with a free but snug fit on the segmental surfaces of the rings. The outer rings are each provided with a disk C which is rigidly secured to the running gear frame of the vehicle. Between these disks C C and the gear casing are a series of horizontal rods D D, equally spaced around the axle.

Should undue strain come upon the rear axle, which would tend to impart torsional strain upon the gears, the segmental bearings of the casing and the disks C C on the rings B B B B, being in effect spherical or ball bearings, will yield so that the rollers of the bearings

English Thornycroft steam freight van which has been introduced into this country in the form of an American edition manufactured by the Cooke Locomotive & Machine Co. It is one of the objects of his invention to effect a yielding connection between a sprocket and chain drive gear and the road wheels, so as to relieve the strains caused by sudden starting and stopping and of quick changes of speed through the variable speed device.

The engine drives a counter shaft through a suitable spur gear speed changing mechanism, and as the countershaft is provided with a differential gear, each rear road wheel is driven independently

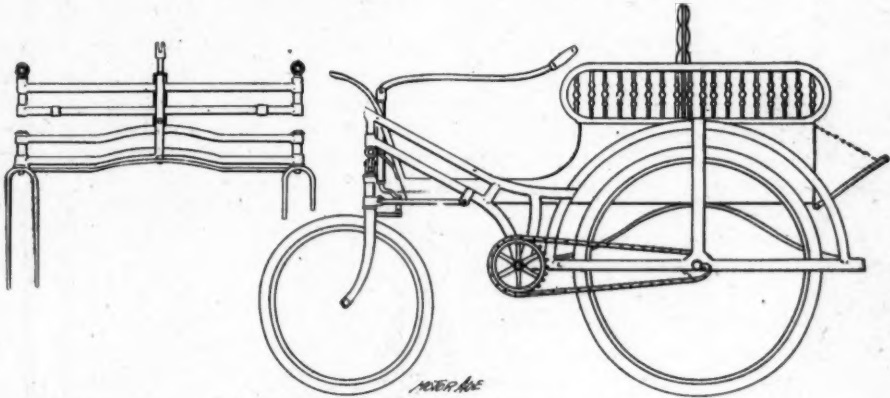
by sprockets and chain. The accompanying illustration shows the rear axle and wheels with driving connections.

The axle is rigid and the wheels are loosely mounted upon it. On each end of the axle, within the adjacent wheel, is a revoluble sleeve. A, journaled in a box B carried by the vehicle body springs. To each sleeve A is rigidly secured a flanged sprocket wheel C, over which runs the driving chain of that respective side of the vehicle. Blocks D D D D are secured to the felloes of the road wheels and between the respective pairs of these blocks are the pairs of springs E E, which are secured at their centers to the sleeves A A. These springs are intended to bear the strains consequent

ing, Wausau, Wis.; running fear for motor-vehicles. Eight claims allowed.

This invention relates to a motor-vehicle frame of tubing and supplied with steering wheels mounted in bicycle forks and so constructed that the major portion of the weight is sustained directly by the rear wheels.

A semi-circular frame supported by a horizontal loop comprises each side of the rear frame, and within the loops are mounted independently the rear wheels. The two sides are united by cross tubes to which are affixed the body supporting springs. The wheels being independent of each other, each is driven by an outside sprocket and chain from the motor shaft or countershaft. The exact trans-



SAUERHERING'S MOTOR-VEHICLE FRAME.

upon sudden changes of speed and starting and stopping the vehicle. This manner of mounting the rear wheels and of connecting them to the driving members also relieves the axle of twisting strain.

Letters patent No. 662,206, dated November 20, 1900, to Mr. Thornycroft relate to the construction of the driving, steering and controlling mechanism of the big Thornycroft steam van. In this wagon, although the transmission of power is through spur gearing instead of sprockets and chains, the same system of spring wheel connection as above described is employed.

TUBULAR AUTOMOBILE FRAME

Letters patent No. 662,030, dated November 20, 1900, to Douglas L. Sauerher-

mission means are not specified by the inventor.

Oblique side frames connect the rear frame, bicycle fashion, with a cross truss which comprises the rigid member of the front frame and to which is attached the forward extremity of the vehicle body. Beneath the rigid front truss is pivoted a cross head or truss having steering heads for the front wheel forks at its respective extremities. The pivotal connection between the rigid truss and the cross head affords compensation for irregular road surfaces.

The center line of the front wheel steering heads is exactly vertical, and the pivot line if extended would thus strike the ground behind the point of contact of steering wheel periphery and ground. This is a condition which renders steer-

ing of this kind exceedingly cranky as it creates a tendency for the wheels to "flop" from the straight and narrow path, and is a point well known to bicycle designers. With the exception of this particular, the vehicle appears to be the production of a bicycle builder.

OTHER PATENTS

Letters patent No. 662,177, dated November 20, 1900, to Henry Tolman, New-

ton, Mass.; elastic tire for automobiles. Nine claims allowed.

Letters patent No. 661,965, dated November 20, 1900, to Kanute A. Elind, Naugatuck, Conn.; non-slipping motor-vehicle tire. Three claims allowed.

Letters patent No. 662,267, dated November 20, 1900, to Jacob A. Hamelback, Zanesville, O.; worm gear driving mechanism for motor-vehicles. Two claims allowed.

NEWS OF THE MOTOR INDUSTRY

CLOSE OF THE PALACE SHOW

New, York, Nov. 25.—The show, which closed at Grand Central Palace last night, could not have been a financial success from gate returns alone, whatever the receipts might have been, with the rentals added. That it should have attracted crowds following on the footsteps of the great spectacular display at the Garden should not have been expected. To have relied on the wealthy followers of the horse in town for the horse show and to have expected them to leave the continuous whirl of attractions morning, afternoon and evening at the Garden, were vain hopes and proved by the outcome to have been without foundation.

The interest shown in the new locomotion as evinced by the enormous crowds at the Garden was more than merely encouraging—it was marvellous. It was against all reason to hope that the high pressure of enthusiasm would last long enough or that the overflow of curious ones and prospective buyers would be big enough to make a second show without spectacular effects a success from an attendance standpoint.

It was, indeed, a marvel that as many visited the Palace as did. At all times there were small groups of interested ones around the stands and in the evening their size was increased and to them were added a thick fringe around the little track, where the contests were held

and the vehicles were in motion. It was noticeable that there was little of aimless wandering through the aisles and those in attendance were constantly grouped about the booths examining the exhibits, putting pointed questions to those in charge and listening to the eloquence of the demonstrators.

Manager Nathan refused yesterday to say whether the Palace show would be attempted another year or discuss the question of the show's success. As to the latter he said he preferred to refer your correspondent to the exhibitors.

"The results must have been satisfactory," said he, "for new exhibitors came in during the week and one exhibitor sent away his exhibit only to bring it back for the last three days of the show and declare to me that it had paid him to do so."

JUDGEMENT AGAINST PENNINGTON

At Manchester, England, on November 17, a jury awarded to one John Harvey, a judgment of \$375 for breach of contract against J. Pennington and William Baines. It appears that Harvey secured an agency for three years of the Pennington motor vehicles, for which he paid \$2,500, which was subsequently recovered by law. He received but one vehicle, where the defendants agreed to furnish thirty vehicles per year and the one that he did receive would not work. Harvey

rented a store and employed a mechanic to do repairs and show off the vehicles, and it was for his expenses in these directions that the damages were awarded.

SIPE & SIGLER BUILDING VEHICLES

As was stated several weeks ago in *The Motor Age*, the well known firm of Sipe & Sigler, storage battery manufacturers will branch out and produce a line of electric vehicles on their own account. During the past two years they have built a number of vehicles for experimental purposes and for the use of their friends, with such success that they will now cater to the trade with several styles. They have recently installed considerable new machinery and are purchasing material for the construction of 100 vehicles. The first lot will be a light plano box runabout weighing between 800 and 900 pounds and equipped with battery sufficient to propel it thirty-five miles with one charge. There will be two forward and one backward speeds by means of the usual lever with two additional forward and one backward speeds by means of a foot button which throws in a shunt and speeds up the motors.

PROMISES GREAT THINGS

H. C. Osborn of the mechanical engineering firm of Amstutz & Osborn, Caxton building, Cleveland, is building a gasoline vehicle which he claims will show a number of entirely new departures in the construction of internal combustion engines and which he believes will work great improvement and effect a considerable saving in the weight of such vehicles. He has recently applied for a number of patents on his new features and until he hears from these he does not care to go into details. But, for example, he maintains that the last cycle of a four cycle is power entirely wasted, and believes that by compressing the mixture in a separate chamber and feeding to the cylinder, at the proper time, sufficient for one charge, the necessity for the fly wheel could be done away with. His idea involves the use of two distinct engines operating at an angle of 45 de-

grees. It is proposed also by manipulating a lever to turn the compressed mixture into a brake on the wheels or mechanism at times when it is desirous to stop the vehicle. He also has a novel hill climbing device which automatically lowers the gear of the vehicle according to the steepness of the incline, or, to speak more accurately, according to the load on the engine. Altogether it promises to be a very unique vehicle.

THE MANUFACTURERS' ASSOCIATION

New York, Nov. 24.—The organization committee of the National Association of Automobile Manufacturers' had a meeting at the offices of the Locomobile Co. of America last Wednesday.

John Brisben Walker, of the Mobile Co. of America, was in the chair, and A. S. Winslow, of the International Motor Carriage Co., acted as secretary. The other members present were: S. T. Davis, Jr., of the Locomobile Co. of America; C. F. Field, of the De Dion-Bouton Motorette Co.; J. M. Hill, of the Electric Vehicle Co.; A. L. Riker, of the Riker Electric Vehicle Co., and E. P. Wells, of the Steamobile Co. of Keene, N. H.

The charter committee (Messrs. Davis, Hill and Field) presented a charter drawn in full. The expediency of immediate incorporation was discussed and action was deferred thereon until the next meeting.

The committee on constitution and by-laws (Messrs. Riker, Wells, Duryea, A. S. Winslow and C. E. Miller, associate members) reported at length. Discussion on them ensued.

The constitution states the object of the association to be "the advancement and promotion of the interests of the automobile trade and essentially a members' association supported by members' subscriptions and not carried on for profit."

The membership is divided into two classes. Active membership is open to persons, copartnerships and corporations in good standing making automobiles, and associate membership to makers of parts or accessories thereto and to trade journals wholly or in part devoted to automobilism. Entrance fee and dues for active membership are \$25 for the first

year and \$10 per annum thereafter. Associate membership fees are \$15 and \$5 thereafter.

The meeting adjourned to next Wednesday, when the incorporation question will probably be settled and the by-laws adopted.

Applications for membership may be made to A. S. Winslow, temporary secretary, Astor Court, New York, to whom also checks for entrance fees and dues may be made.

A NARROW BICYCLE MOTOR

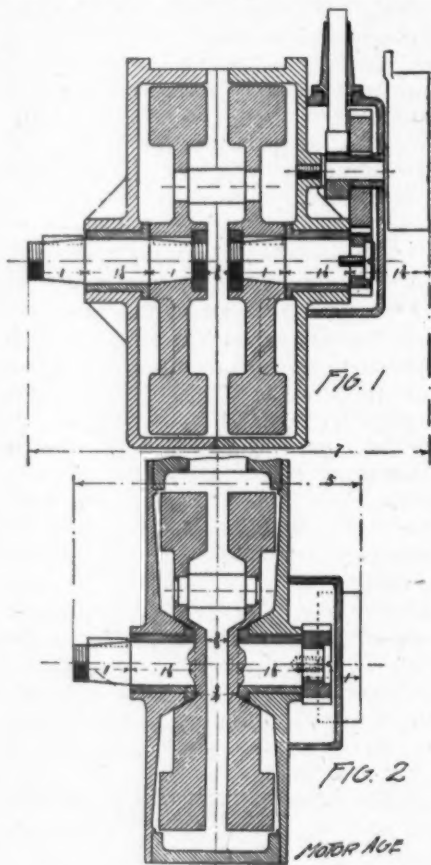
The Motor Cycle Mfg. Co. of Brockton, Mass., has displayed commendable zeal in motor bicycle construction. Particularly in designing the crank mechanism so as to reduce it in extreme width, so that it may come within the limits of the ordinary spread of cranks of the accepted bicycle design, have they displayed a knowledge of the requirements. Writing concerning this particular of their construction they say:

In the accompanying cut, Fig. 1, represents the common form of bicycle motor, while Fig. 2 represents the Marsh motor. It has been demonstrated beyond question that a motor bicycle to be practical should be fitted with pedals, and some kind of a free wheel or coaster brake so that the rider can mount, and use the pedals to get under way when the motor may be set in operation and the feet allowed to stop.

It is a well known fact that any gasoline motor must be turned through one complete cycle before it will receive an impulse and consequently start. Now, any motor cycle which the rider depends on pushing along until the motor starts, and then mounting it while in motion, is a failure because the instant the motor starts with the weight of the rider it slips the driving wheel around on the ground which ruins the tire in a very short time; also, it will be found impossible to get under way while on an up grade.

Now, if we use pedals, we must have a motor that is narrow enough to go between them without increasing their width enough to make the bicycle clumsy and ungainly.

By carefully studying the accompanying figure, it will be seen how neatly and substantially this has been accomplished. In the common form (Fig. 1) which is really only a reduction in size of the French tricycle motor, the crank disc and balance wheel are of cast iron and are fitted to the steel crank-shafts



Old and New Forms of Bicycle Motor Crank Mechanism

by a taper fit with a key to hold it in place.

That, as may be seen, takes up considerable space and causes the bearings to be a greater distance apart, and, if the very finest workmanship is not used in fitting these wheels to the shaft, they will soon work loose and come apart in the crank case. In the Marsh motor, as will be seen in Fig. 2, the crank-discs and shafts are made from steel in one piece and as there is no joint to make, the bearing is set clear into two crank-

discs, thus giving the motor a chance to have large bearings and still be very narrow; besides it brings the force of the impulse directly over the ends of the bearings, and also does away with all danger of the crank and shaft working apart.

It will be seen by examining the cut in Fig. 2, the ignition device is placed in front of the exact lifter which tends to make the motor much narrower. As mentioned before, the Marsh motor is manufactured by the Motor Cycle Mfg. Co., of Brockton, Mass., who will furnish the castings and blue-prints to those who wish to build motors for themselves.

PHILADELPHIA'S SHOW

Philadelphia, Nov. 26.—February 4 to 9 are the dates set for Philadelphia's first Automobile Show, and the Pennsylvania Automobile Club, whose officials are largely interested in promoting the affair, have asked the Automobile Club of Philadelphia to join hands with them in making it a success. The track events which will be a feature each afternoon and evening, as well as the entertainment of visitors and the other social features, will be under the direct supervision of committees composed of members of these clubs.

It is the intention of the managers to ask the Association of Automobile Manufacturers, recently organized in New York, to officially sanction the show, as a majority of the more prominent exhibitors at the Madison Square Garden show will be represented here.

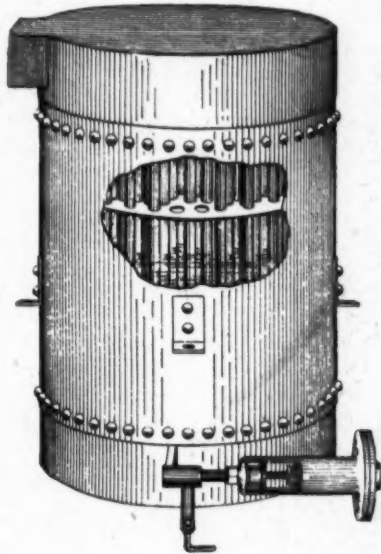
WESTON'S AUTOMOBILE BOILER

Frank F. Weston, of Elmira, N. Y., as sales agent for the Elmira Boiler Works, is offering to the trade a steam boiler of which the accompanying illustration shows the construction. The shell of the boiler is of steel with a vertical seam, double riveted. The thickness of the shell is 3-16 of an inch. The heads are of flanged steel of the same thickness. All the tubes are of 20-gauge, 1/2-inch, seamless copper.

The dry plate, just above the water line,

between the heads, prevents foaming, as it is impossible for the water to get above the plate into the steam chamber. The copper tubes pass loosely through this plate, so as to permit the steam to pass it. The tube surface above the plate acts in the capacity of a super-heater and tends to create a high quality of dry steam.

The boiler is built, regularly, in four sizes, the two smaller of which have dou-



Weston's Automobile Boiler.

ble riveted seams and the two larger, triple riveted seams. The sizes, number of tubes and list prices are as follows: No. 1, 13x14, 290 tubes, \$115; No. 2, 16x16, 360 tubes, \$165; No. 3, 18x18, 20 tubes, \$200; and No. 4, 20x20, 480 tubes, \$250.

A FRENCH SCAVENGING DEVICE

The accompanying illustration shows a device, of French design, for completely exhausting the cylinder of a gasoline engine of the products of combustion, an object universally admitted to be of value, if not accompanied by too much complication.

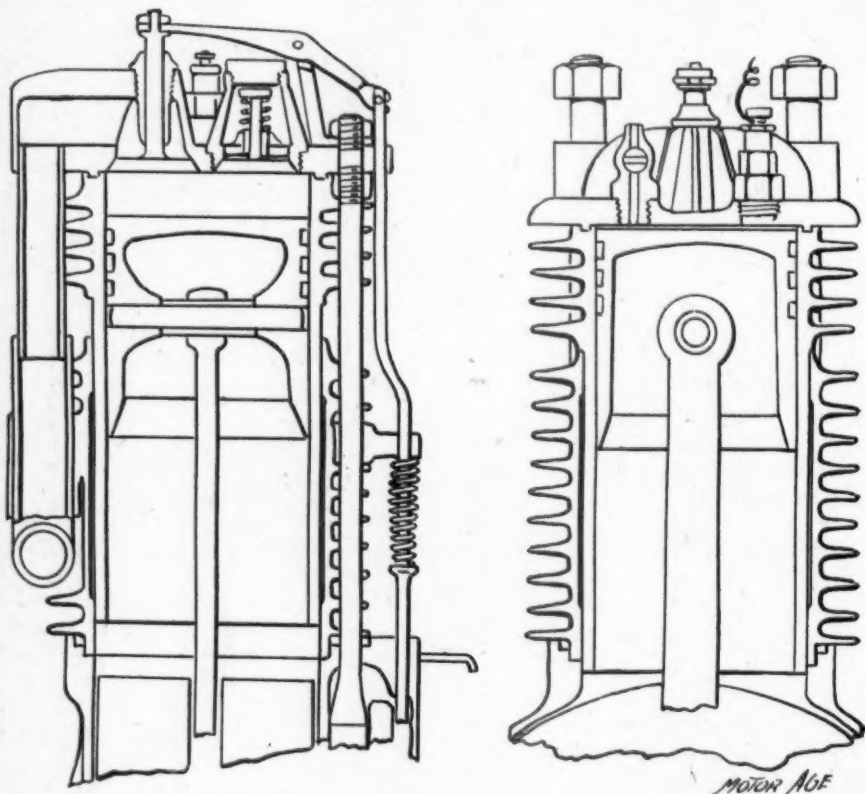
An inspection of the illustration, showing two sectional views of the French device, will reveal the fact that the cylinder is made in two parts, one telescoping

into the other. A system of cams is so arranged that the portion of the cylinder carrying the head will be drawn out so as to leave room for the explosive charge, as that charge is brought in and compressed. On the exhaust stroke of the piston, however, the cylinder head is forced down to the position shown in the right-hand view, thus completely ex-

ploding the piston to the end of the cylinder every alternate stroke.

KEIM'S CATALOGUE

John R. Keim of Buffalo, N. Y., has gotten out a very comprehensive catalogue of bicycle and automobile parts and fittings. Of particular interest to the au-



A FRENCH SCAVENGING DEVICE

pulling the burned gases and permitting the new charge to be drawn in without mixing with the burned gases usually left in the cylinder.

It is probable that the complications entailed in the construction will more than offset all its advantages, as has been the case in a number of devices designed to accomplish the same purpose. Among these devices was one of English origin in which a cam on the wrist pin of the motor was made, through a gear and

tomobile trade, are the steam engines and engine parts, boilers and running gear forgings. These have been described at some length in *The Motor Age* recently. The boilers are furnished complete in two sizes. The running gear forgings are so made that they may be combined at different angles to give a distinctive appearance to any particular make of vehicle in which they are employed. The engine is very compact and is thoroughly well constructed. The parts are fur-

nished either in the rough or machined, as desired, or the engine can be obtained complete, ready for service.

PROPOSED EMPORIUMS

New York, Nov. 25.—Ambitious plans are now under way for the establishment of two great automobile emporiums or exchanges in this city, in which, it is said, large capital will be invested. Though along the same idea of a central selling place the schemes differ somewhat. In one of them it is proposed to establish a great emporium or permanent exhibition, after the plan of the successful furniture exchange of this city. Spaces are to be rented to makers as at a show, each exhibit or booth to be in charge of its own salesmen and employees.

In the other the business will be conducted as a whole by the management of the enterprise. Ample trial space and competent instructors will be provided and the payment asked will be by commission on vehicles sold.

These are the plans in barest outline only. Detail and modification will probably make both schemes possible and encourage their actual promotion. Of course the storage and repair features will be added to each.

AMALGAMATION DEAL CLOSED

It is stated that the deal by which the Canada Cycle & Motor Co. absorbs the National Cycle & Automobile Co. has been closed. At the offices of the latter company at Hamilton the announcement was made that Messrs. Dodge and Evans were no longer connected with the enterprise. Very little is being done at the company premises at Hamilton, and there is considerable speculation as to what will be done with the factory built for the company.

AUTO TRUCK TEST

A newspaper dispatch from Greenwich, Conn., says that an automobile truck which the Adams Express Co. sent out from New York one morning on a test trip, arrived at Greenwich at half past

five the same day, after being on the road all day.

The truck was heavily built and made a speed similar to that of a steam road roller. The wheels have tires nine inches wide. In the truck were twelve barrels containing 5,500 pounds of coal. Three men were in charge. It is one of the trucks the company has been experimenting with for a year for the purpose of carrying heavy articles between the Grand Central Depot and Jersey City. The trip over the hilly road was pronounced a success.

BRIEF NEWS OF THE INDUSTRY

The Federal Automobile Co. of East Orange, N. J., has been incorporated for \$500,000.

The Rambler Cycle & Automobile Co. of Detroit has been incorporated with a capital stock of \$25,000.

The Marine Vapor Engine Co. has been absorbed by the Marine Engine & Machine Co. of Harrison, N. J.

C. J. Downing & Co. of New York City, have been incorporated for \$5,000, to deal in bicycles and motor vehicles.

The Imperial Automobile Co. of Chicago has contracted to purchase a three-story building at 305 West Lake Street for \$50,000.

The Locomobile Co. of America has begun work on the erection of their new plant at Bridgeport, Conn., which will be 200 by 400 feet.

It is reported that the Lee & Porter Co. of Detroit are going to engage extensively in the manufacture of automobiles this winter.

C. F. Webber of Albany, N. Y., is organizing an automobile concern to manufacture in that city. He was formerly in the bicycle business.

R. W. Whipple of Binghamton, N. Y., is to open an automobile repository at 72-74 State Street, in that city. He will handle Locomobiles exclusively.

The New York accounts of Townsend, Reed & Co. of Chicago, have been attached by the Peckham Motor Truck & Wheel Co. of the former city, for failure

to accept trucks which they bought and which were shipped to them on May 19.

The Keystone Wagon & Automobile Co. has been incorporated under the laws of New Jersey for \$1,500,000. The attorney is W. W. Cook of 44 Wall Street, New York City.

The Maryland Automobile Co. of Westernport, Md., has increased its capital stock to \$25,000 and has let a contract for the erection of a building 200 by 70 feet, of brick and steel.

The De Dion-Bouton Motorette Co. have gotten out a press sheet in which C. G. Wridgway tells the interesting story of his trip from New York to Toledo in a Motorette. The chauffeur has a ready pen and a taking style. The sheet also gives an extract from an English paper's account of the 1,000-miles trial which is highly complimentary to the

De Dion product—both vehicles and motors.

The Steam Vehicle Co. of America, makers of the Reading steam carriage, have opened a storage stable at 160 West Fifty-sixth Street, New York City, where special attention will be given to storing and caring for steam vehicles.

The Metropolitan Motor Express Co. of New York City has been incorporated under the laws of New Jersey for \$1,500,000. Charles S. Dickinson, one of the New York incorporators, refused to give any details in regard to the company.

The Citizens' Transportation Co. of Chicago, of which Adam Brachvogel is president, have let a contract for the construction of an automobile barn 102 by 107 feet at 638 to 640 Wells Street. The company will run a line of 'buses from Lincoln Park to the Union Depot.

WORKS A REAL HARDSHIP

Philadelphia, Nov. 26.—The recent ruling of the Treasury Department excluding from ferry and other passenger-carrying boats motor vehicles propelled by gasoline, or using that substance as fuel, is working a great hardship to local motorists, who find in the level roads of Jersey just such highways as they most delight in. From Camden, just across the river, well-constructed pikes radiate in every direction, and in the absence of bridges below Trenton, which is thirty miles up the Delaware, the rigid enforcement of the obnoxious law practically deprives the Quaker City chauffeurs of the enjoyment to be obtained from traveling thereon.

Forbidden Fruit

As is natural, the mere fact that they cannot cross to Jersey except under very annoying conditions, such as the emptying and refilling of the fuel tanks must naturally entail, has made the usually docile Philadelphia autotan just "itch"

for outings in the land just across the river. In this connection one of the ferry companies—that operating the line between this city and Gloucester (about four miles below Camden)—had, up to a few days ago, steadfastly declined to question automobilists as to the character of their fuel, with the result that many of them took that roundabout route in order to reach the sacred soil of Jersey. But now even this avenue is cut off, and the murmurs of discontent are daily becoming louder.

Law is Out of Date

One thing about the enforcement of this almost forgotten law is that its very antiquity, its senselessness and the fact that farmers who were wont to carry hay in bulk in large wagons from their Jersey farms across on the ferries to this city are included in its provisions will of necessity force the officials to take steps to either have it repealed or so modified as to be in consonance with up-to-date

conditions which were naturally unforeseen when the measure was first placed on the statute books.

Hurts the Trade

Local dealers and agents realize that, unless soon repealed or modified, this antiquated law will work considerable harm to their business; they also realize that as long as it is on the books the ferry companies must enforce it. The officials of the two local automobile organizations are taking steps to interest Philadelphia congressmen in the fight for repeal, while on the other side of the river Senator Sewell, of New Jersey, has already outlined a plan of campaign which he thinks will surely result in the removal of the obnoxious statute from the books early in the coming season.

No one can be found who will have the hardihood to oppose the movement, and it goes without saying that the friends of the automobile will do some tall lobbying at Washington after New Year's Day—and with everybody pulling in one direction something is bound to give way.

Another Cycle Club in Line

The success already attending the efforts of the crack Century Wheelmen to induce automobilists to join their organization has impelled another cycling organization, the Pennsylvania Bicycle Club, to seriously consider the advisability of following in the Centurions' footsteps. The club is located in West Philadelphia—on Girard Avenue, across the street from West Fairmount Park. The location is an admirable one, and should a sufficient number of assurances of support be received at the next meeting, when the committee having charge of the matter will report, extensive alterations to the present handsome club house will at once be started. The P. B. C. has at present a membership of a trifle over 225.

An Automobile Census

An unofficial automobile census of Philadelphia has brought to light the fact that there are about 265 self-propelled pleasure vehicles at present in that city. Of these less than a dozen are motor cycles. Local dealers are firm in the belief that next spring will witness a 100

percent increase in the list, based on the number of inquiries from prospective purchasers.

ANOTHER FRENCH CONTEST

The second annual hill climbing contest at Gaillon, France, took place recently, over a course of one kilometer (about five-eighths of a mile) having an average grade of 7½ percent. As usual in French contests, the vehicles were divided into classes—no less than eleven, in the present instance. Beconnais was the hero of the occasion, making the fastest time of all the contestants, and being the winner in two classes. His best time was made on a motor tricycle on which he covered the kilometer in 58 1-5 seconds. The times of the other class winners varied from this figure up to 3 minutes and 23 4-5 seconds for a vehicle weighing a trifle more than 800 pounds and carrying four passengers.

AN ENGLISH ANNIVERSARY RUN

In an annual celebration of the repeal, in 1896, of the English law prohibiting the use of motor vehicles on the public highways, the Automobile Club of Britain gave a run from London to Southsea on November 10. The 149 automobiles participating included all sorts of self-propelled vehicles, from big sixteen-horsepower road locomotives to diminutive tricycles. Among these vehicles were six Locomobiles, one Stanley steam carriage and one Haynes-Apperson gasoline machine.

A hill climbing contest was pulled off one portion of the run, for which a cup was offered as a prize, while diplomas were given to thirty vehicles which completed the run without any stop. The second day—Sunday—was devoted to runs in the neighborhood of Southsea by many of the tourists, while others returned to London. Those who waited till the scheduled Monday to return encountered miserably rainy weather which spoiled their pleasure.

After the arrival at Southsea, a dinner was given during the course of which the Hon. John Scott Montague, reviewing the progress of the club for the past year,

said that the 1,000-miles trial, the first of its kind in the country, was an undoubted success. It was not the least remarkable feature of that trial that, as far as he knew, no serious accident was caused, although there was a mileage of some 60,000 run upon the road. That in itself was no mean testimony to the way the vehicles were handled and to the general reliability of those vehicles. They had had a run to Portsmouth two or three days back, and he had heard nothing but admiration and appreciation of the way the vehicles were then handled. The work of the club in the beginning of its career must necessarily be defensive, and he thought their attitude ought to be extremely cautious and deferential to the public. It was only necessary to go back to the early days of the railways, and especially to the speed of railways, to get some of the arguments that were now used against automobiles. He perfectly well remembered his grandfather telling him that the great object of land owners should be to keep railways as far as possible from their estates and residences. Now a railway was regarded as a distinct benefit to a neighborhood. He believed, if they were only cautious, or "canny" as the Scots said, in their attitude to the public and other users of the highway, the attitude of the public towards them would change far more rapidly than it did toward railways. The conservative character of the nation was such that they had opposed every new innovation. They had been and were still behind the world in telephones and electric light, and they were behind in locomotive power on the railways. In many forms of locomotion they were behind the Continent and the United States, therefore they must bear with the British public and with the house of parliament to subject them to legislation which might seem to them unfair. Presently they would be opposed by an attempt at further restrictions, but he trusted it would never take place, and he believed it would never take place if they were deferential to the public as a whole. One significant fact that had happened since last year was the use of automobiles in the general election. He was able, although he had

an uncontested election, to visit all his larger towns and villages, and he was able to attend two or three meetings a night by the use of a motor car. Every candidate for Parliament would tell them that not only did he fail to arouse any antagonism, but he created great interest in automobiles. Candidates got at more meetings per night by reason of automobiles, and that would appeal more and more to members of parliament. He wanted to say a word or two about resisting any further restrictions on the automobile world in this country. France was supplying the world with automobiles and their export trade had very rapidly increased. They had added to the list of members of the club some most influential people. A. J. Balfour regarded the movement with the greatest interest, and he had that very afternoon ordered two more motor cars. If they waited he was sure victory would be theirs.

AUTOMOBILES AND PROGRESS

Those of us who are accustomed to revile places like Philadelphia because oats grow up between the cobble stones there, may yet live to boast of the smooth sward grass upon our own Fifth Avenue, when the destroying hoof of the horse is known no more in our streets, says the Electrical Review. Grass will then become a sign and symbol of improvement; we will even cherish the stray shamrock that will adorn the Broadway crossings. The passing of the horse will be neither uncertain nor slow. Probably in a century the mighty Percheron and the shaggy legged dray horse will be known only by such specimens as wise and far-seeing museums may secure and preserve. Possibly in that day the horse will be, as he has always been, a feature of sport and an accessory of pleasure, and we will probably see (if we live long enough) some considerable lowering of his record upon the race track; but in the city he will be as extinct as the dodo. Our traffic and pleasure vehicles will run, doubtless, upon pneumatic tires made with some substitute for the then forgotten India rubber, and in place of the white clad street cleaner we will see the



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conductor of automobile mowing machines trimming the grass at intervals in our busy thoroughfares.

NOTES OF INTEREST

The postal authorities of Cape Colony have been experimenting with motor vehicles.

A representative of the Sultan of Turkey has placed an order for a vehicle for his master.

Los Angeles, Cal., contains more than a score of automobile owners who are about to form a club.

An automobile stage route has been projected, running from Flagstaff, Arizona, to the Grand Canon of the Colorado.

"Railroad automobiles" are becoming popular with the officials of the Illinois Central Railroad in Chicago. A Celt might call them "self-propelled hand-cars." They were originally used in purely a business way by the men who were frequently obliged to visit the va-

rious parts of the roadway. They were found so convenient that now a number of the Illinois Central men employ them in going to and from their offices.

One newspaper, in commenting on the refusal of the Philadelphia and other ferries to carry vehicles employing gasoline, in any form, says that it will be necessary to make vehicles so that they can swim.

The announcement is made that a company of Weedsport (N. Y.) capitalists have placed orders for four motor omnibuses to run between that town and the neighboring town of Auburn. Reports of this character are not uncommon nowadays.

Capt. J. D. Taylor, who has gained renown as the "sailor evangelist," has organized the Automobile Gospel Wagon Co. in Chicago for the purpose of soliciting funds to buy motor vehicles which shall be employed in spreading the Gospel. "I propose," said Mr. Taylor, who is now in Kansas City, "to preach to the men from the wagons and to sell them

FIRST ANNUAL
NATIONAL
**AUTOMOBILE
EXHIBIT**
AT THE
Chicago Coliseum

March 23-30, 1901

FOR DETAILS ADDRESS _____

THE MOTOR AGE

Monon Building

CHICAGO

Bibles and give them such literature as will benefit them. I am asking all the rich and poor of the country to help in this work. If any one sends in enough money for a complete outfit I will name an automobile after him."

"If a man wants to learn how very careless the ordinary driver of a buggy is, let him take a ride around the city in an automobile," remarked a member of the Cleveland Auto Club, "Let him just watch the ordinary driver. He goes along with the lines hanging loosely. He swings the carriage abruptly across the street, indifferent to anything coming his way. Now, a man in an automobile has to regulate his own speed, guide his carriage, look out for both himself and the whole lot of careless drivers on the street. You may think there are many good drivers in the city, but my word for it, they are all careless."

MISCELLANEOUS

Advertisements under this head 5 cents per word, cash with order. Express orders, post office orders, or postage stamps accepted.

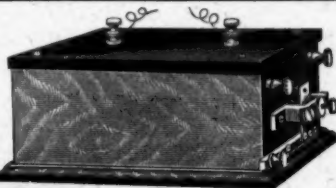
FOR SALE

FOR SALE—1899 Winton in good condition; shows very little wear; machine can be seen and tried at No. 13 Monadnock Building, Chicago. D. W., agent, above address. 3

FOR SALE—The Automobile Storage and Repair Co., 57 West 66th St., New York, have new and second-hand steam, gasoline, and electric carriages constantly on hand and have always some special bargains.

JUMP SPARK COILS

C. F. SPLITDORF,
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That are compact and effective. If you have had trouble, try my coil.

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Are detachable, double tube tires. An occasional puncture is inevitable in any tire. Any one can repair a G & J Automobile Tire easily and permanently. ::

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EDITED BY HENRY STURMEY

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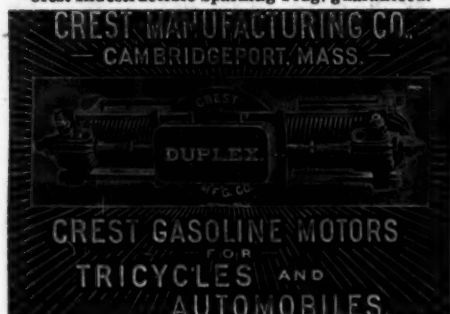
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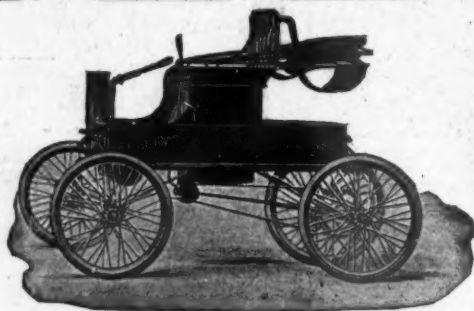
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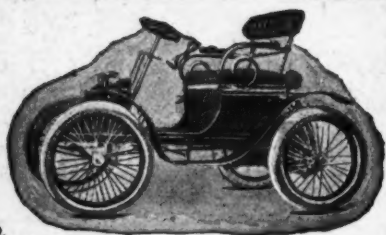
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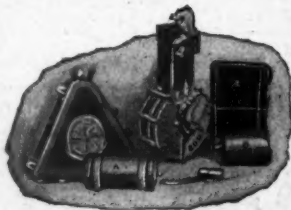
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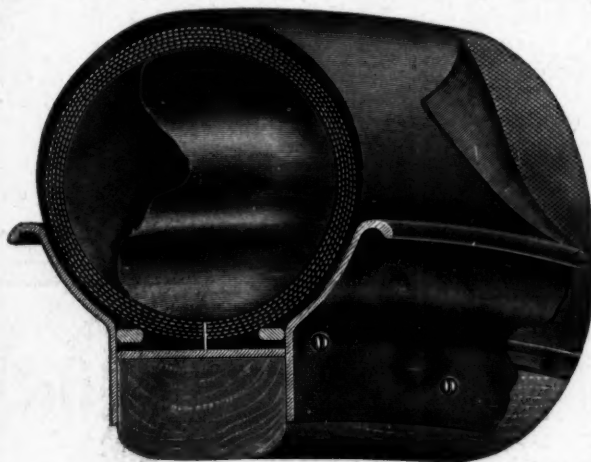
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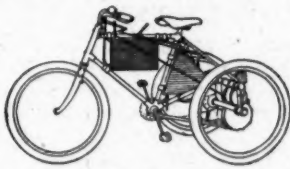
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N. Y. Commercial Advertiser, Nov. 16.

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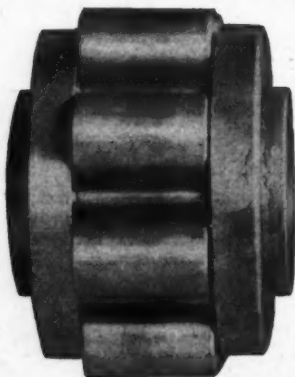
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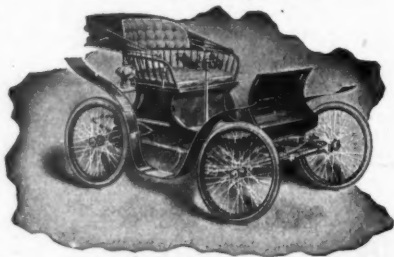
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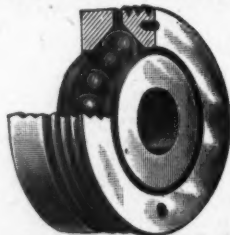
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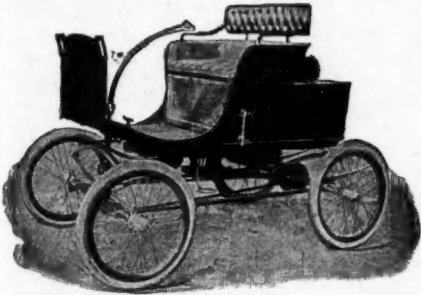
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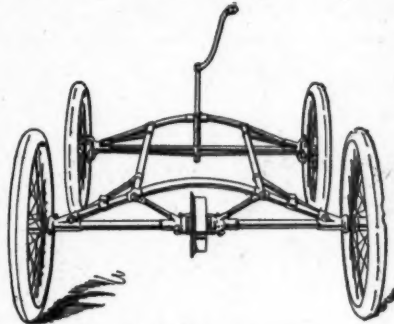
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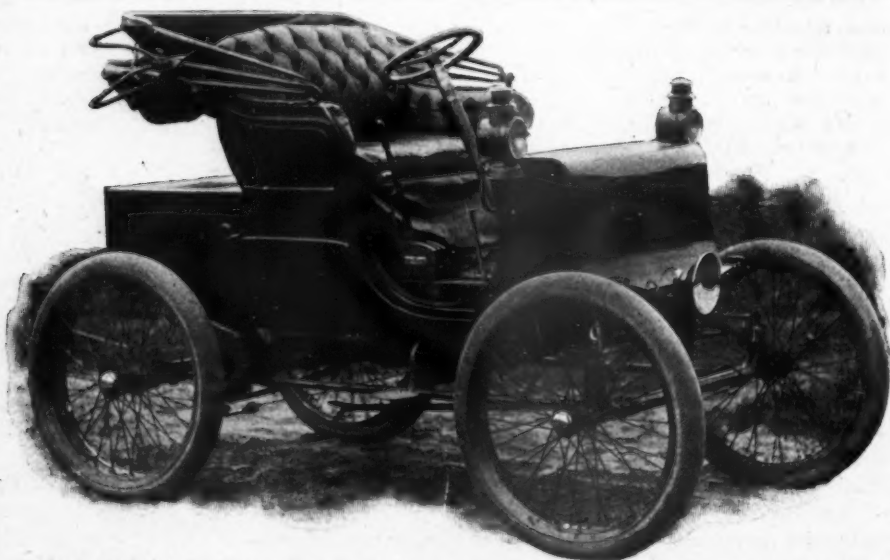
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